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## APPENDIX E

### SUPPLEMENT FOR CHAPTER 3

This appendix provides supplementary information for the analyses reported in Chapter 3. Each Exhibit in the appendix corresponds to an Exhibit of the same number in Chapter 3. The boxes at the bottom of each Exhibit refer to the Teacher Activity Survey item numbers or composite variables on which the exhibit is based. Teacher Activity Survey item numbers begin with the letter “A,” followed by the section of the survey and the item involved. For example, item number “A3\_24a” refers to section 3, item 24a of the survey. All items referred to in the chapter appear at the end of this appendix, in Exhibit 3.21d. Composite variables, which appear in all-capital letters (for example, ALEARN\_T), are defined in Exhibit 3.21b. Due to missing data caused by teacher nonresponse to particular survey questions, the number of teacher responses varies across survey items.

#### EXHIBIT E.3.1

#### Percent of Teachers Reporting Participation in Traditional and Reform Types of Eisenhower-assisted Professional Development Activities (District n=775, SAHE Grantee n=244)

	District	SAHE Grantee
In-District Workshop or Institute	52.06	22.93
College Course	4.41	26.09
Out-of-District Workshop or Institute	15.12	25.34
Out-of-District Conference	7.60	.31
Collaborative or Network	5.54	7.96
Study Group	1.04	2.92
Mentoring	3.70	7.90
Committee or Task Force	8.53	1.80
Internship	.69	2.58
Resource Center	1.32	2.16

**Source:** Mail Survey of Teachers Participating in Eisenhower supported Professional Development Activities, 1998

**Note:** “Districts” refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. “SAHE Grantees” refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.

**Variables:** A3\_2CAT (A3\_2 with “other” responses categorized into standard response options)

### EXHIBIT E.3.2

#### Contact Hours Provided by Eisenhower-assisted Professional Development Activities, as Reported by Teachers (District n=767, SAHE Grantee n=244)

	<i>Mean</i>	<i>SD</i>	<i>n</i>	<i>F</i>	<i>df</i>	<i>p</i>
<b>Program Component</b>				51.28	1, 1007	0.00
District	25.44	(35.16)	767			
SAHE Grantee	51.10	(39.34)	244			
<b>Type</b>				2.37	1, 1007	0.12
Traditional	29.57	(34.22)	804			
Reform	38.51	(48.75)	207			
<b>Program Component * Type</b>				5.46	1, 1007	0.02
District * Traditional	22.74	(28.97)	609			
District * Reform	34.58	(51.58)	158			
SAHE Grantee * Traditional	51.73	(40.23)	195			
SAHE Grantee * Reform	49.30	(35.86)	49			

**Source:** Mail Survey of Teachers Participating in Eisenhower supported Professional Development Activities, 1998  
**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.  
**Variables:** A3\_10\_12 =(A3\_10+A3+12)

### EXHIBIT E.3.3

#### Time Span of Eisenhower-assisted Activities, as Reported by Teachers (District n=766, SAHE Grantee n=244)

	<i>Mean</i>	<i>SD</i>	<i>n</i>	<i>F</i>	<i>df</i>	<i>p</i>
<b>Program Component</b>				44.36	1, 1007	0.00
District	3.98	(2.21)	767			
SAHE Grantee	5.61	(2.09)	244			
<b>Type</b>				9.52	1, 1007	0.00
Traditional	4.20	(2.24)	804			
Reform	5.07	(2.34)	207			
<b>Program Component * Type</b>				7.08	1, 1007	0.01
District * Traditional	3.76	(2.11)	609			
District * Reform	4.89	(2.36)	158			
SAHE Grantee * Traditional	5.59	(2.07)	195			
SAHE Grantee * Reform	5.67	(2.21)	49			

**Source:** Mail Survey of Teachers Participating in Eisenhower supported Professional Development Activities, 1998  
**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.  
**Variables:** Time Span

### EXHIBIT E.3.4

#### Percent of Teachers Reporting School-level and Department or Grade-level Participation in Eisenhower-assisted Professional Development Activities (District n=783, SAHE Grantee n=244)

<b>Collective Participation</b>	<b>District</b>	<b>SAHE Grantee</b>
All teachers in department or grade level	19.84	7.18
All teachers in school	18.59	10.75

**Source:** Mail Survey of Teachers Participating in Eisenhower supported Professional Development Activities, 1998  
**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.  
**Variables:** A3\_24c, A3\_24d

### EXHIBIT E.3.5

#### Percent of Teachers Reporting a Major Emphasis on Mathematics and Science Content Knowledge in Eisenhower-assisted Professional Development Activities (District n=754, SAHE Grantee n=243)

	<i>Mean</i>	<i>SD</i>	<i>n</i>	<i>F</i>	<i>df</i>	<i>p</i>
<b>Program Component</b>				21.35	1, 993	0.00
District	1.36	(0.72)	754			
SAHE Grantee	1.63	(0.57)	243			
<b>Type</b>				1.39	1, 993	0.24
Traditional	1.41	(0.69)	794			
Reform	1.49	(0.72)	203			
<b>Program Component * Type</b>				0.01	1, 993	0.91
District * Traditional	1.34	(0.72)	600			
District * Reform	1.41	(0.74)	154			
SAHE Grantee * Traditional	1.61	(0.56)	194			
SAHE Grantee * Reform	1.69	(0.62)	49			

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.

**Note:** “Districts” refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. “SAHE Grantees” refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.

**Variables:** D2\_CO (A3\_13f)

### EXHIBIT E.3.6

#### Percent of Teachers Reporting That They Had Opportunities to Observe or Be Observed Teaching in Eisenhower-assisted Professional Development Activities (District n=783, SAHE Grantee n=244)

<b>Types of Opportunities to Observe and Be Observed Teaching</b>	<b>District</b>	<b>SAHE Grantee</b>
Teacher received coaching	9.63	21.58
Leader observed teacher teaching	4.56	16.49
Others observed teacher teaching	10.11	15.17
Teacher’s classroom observed	5.30	21.56

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.

**Note:** “Districts” refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. “SAHE Grantees” refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.

**Variables:** A3\_6b, A3\_6d, A3\_6e, A3\_35d

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### EXHIBIT E.3.7

#### Percent of Teachers Reporting Opportunities to Plan Classroom Implementation in Eisenhower-assisted Professional Development Activities (District n=783, SAHE Grantee n=244)

Types of Opportunities to Plan Classroom Implementation	District	SAHE Grantee
Practiced in simulated conditions	28.95	38.11
Held formal meetings	31.97	50.53
Communicated with leader	36.35	53.51
Held informal meetings	46.70	52.64
Developed lesson plans	29.49	46.43

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.

**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.

**Variables:** A3\_6a, A3\_6c, A3\_6f, A3\_6h, A3\_6i

### EXHIBIT E.3.8

#### Percent of Teachers Reporting Opportunities to Examine Student Work in Eisenhower-assisted Professional Development Activities (District n=783, SAHE Grantee n=244)

Types of Opportunities to Examine Student Work	District	SAHE Grantee
Teacher reviewed student work	18.85	26.40
Scored assessments	9.42	13.10
Leader/others reviewed student work	11.36	17.84
Student outcomes evaluated	9.07	12.19

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.

**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.

**Variables:** A3\_27m, A3\_27n, A3\_6g, A3\_35e

### EXHIBIT E.3.9

#### Percent of Teachers Reporting Opportunities to Present, Lead, and Write in Eisenhower-assisted Professional Development Activities (District n=783, SAHE Grantee n=244)

Types of Opportunities to Present, Lead, and Write	District	SAHE Grantee
Gave lecture or presentation	18.27	42.32
Conducted a demonstration	24.03	42.58
Led a whole-group discussion	8.33	9.89
Led a small-group discussion	16.58	20.83
Wrote a report	14.75	43.97

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.  
opportunity to give a lecture or presentation. Each bar and the number on the top of it represent the percent of teachers for each category.

**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.

**Variables:** A3\_27e, A3\_27f, A3\_27g, A3\_27h, A3\_27j

### EXHIBIT E.3.10

#### Number of Opportunities for Active Learning in Eisenhower-assisted Professional Development Activities, as Reported by Teachers (District n=767, SAHE Grantee n=244)

	Mean	SD	n	F	df	p
Program Component				38.39	1, 1007	0.00
District	3.60	(3.49)	767			
SAHE Grantee	5.81	(3.94)	244			
Type				1.45	1, 1007	0.23
Traditional	3.96	(3.64)	804			
Reform	4.69	(3.99)	207			
Program Component * Type				3.98	1, 1007	0.05
District * Traditional	3.38	(3.36)	609			
District * Reform	4.35	(3.88)	158			
SAHE Grantee * Traditional	5.87	(3.89)	195			
SAHE Grantee * Reform	5.63	(4.20)	49			

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.

**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.

**Scale Definition:**  $ALEARN\_T = (A3\_6a + A3\_6c + A3\_6f + A3\_6h + A3\_6i) + 5/4 * (A3\_6b + A3\_6d + A3\_6e + A3\_35D) + (A3\_27e + A3\_27f + A3\_27g + A3\_27h + A3\_27j)$

**Scale Reliability:** .84

**Variables:** ALEARN\_T

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### EXHIBIT E.3.11

#### Percent of Teachers Reporting That Eisenhower-assisted Professional Development Activities are Related to Their Other Professional Development Experiences (District n=748 to 760, SAHE Grantee n=238 to 239)

Relationship to Other Experiences	District	SAHE Grantee
Consistent with goals	78.99	87.91
Build on earlier activities	35.00	38.80
Followed up with additional activities	52.88	69.56

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.

**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program. Due to missing data for some items, the district n ranges from 748 to 760 and the SAHE Grantee n ranges from 238 to 239.

**Variables:** A3\_34a A3\_34c A3\_34d

### EXHIBIT E.3.12

#### Percent of Teachers Reporting That Eisenhower-assisted Activities are Aligned with State and District Standards, Frameworks, and Assessments (District n=748 to 753, SAHE Grantee n=238)

Alignment with State and District Standards and Assessments	District	SAHE Grantee
Designed to support state and district standards	79.69	79.00
Designed to support state and district assessments	68.16	65.83

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.

**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program. Due to missing data on some items, the district n ranges from 748 to 753; the SAHE Grantee n is 238.

**Variables:** A3\_34e A3\_34f

### EXHIBIT E.3.13

#### Percent of Teachers Reporting That They Communicated with Other Teachers about Their Experiences in the Eisenhower-assisted Professional Development Activities (District n=783, SAHE Grantee n=244)

Types of Communication	District	SAHE Grantee
Discussed with other teachers	73.00	85.00
Discussed with administration	62.80	66.35
Communicated with teachers in other schools	40.79	54.31

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.

**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.

**Variables:** A3\_31 A3\_32 A3\_33

### EXHIBIT E.3.14

#### Degree to Which Eisenhower-assisted Professional Development Activities Foster Coherence, as Reported by Teachers (District n=747, SAHE Grantee n=235)

	Mean	SD	n	F	df	p
Program Component				10.41	1, 978	0.00
District	5.94	(1.92)	747			
SAHE Grantee	6.39	(1.95)	235			
Type				15.34	1, 978	0.00
Traditional	5.92	(1.84)	783			
Reform	6.48	(2.23)	199			
Program Component * Type				1.77	1, 978	0.18
District * Traditional	5.84	(1.83)	596			
District * Reform	6.27	(2.22)	151			
SAHE Grantee * Traditional	6.16	(1.85)	187			
SAHE Grantee * Reform	7.02	(2.15)	48			

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.

**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.

**Scale Definition:** COHERE\_T=1.5\*(A3\_34e + A3\_34f)+(A3\_34a + A3\_34c + A3\_34d)+(A3\_31 + A3\_32 + A3\_33)

**Scale Reliability:** .71

**Variables:** COHERE\_T



### EXHIBIT E.3.15

#### Percent of Teachers Reporting Enhanced Knowledge and Skills Due to Participation in Eisenhower-assisted Professional Development Activities (District n=731 to 750, SAHE Grantee n=233 to 240)

Areas of Knowledge and Skills	District	SAHE Grantee
In-depth knowledge of math/science	48.20	68.14
Curriculum	55.92	64.41
Instructional methods	62.79	79.16
Approaches to assessment	45.66	48.29
Use of technology	24.48	50.22
Approaches to diversity	26.04	35.12

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.

**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE Grantees component of the program. Due to missing data on some items, the district n for ranges from 731 to 750; the SAHE Grantee n ranges from 233 to 240.

**Variables:** A4\_1a A4\_1b A4\_1c A4\_1d A4\_1e A4\_1f

### EXHIBIT E.3.16

#### Extent to Which Participation in Eisenhower-assisted Professional Development Activities Enhanced Knowledge and Skills, as Reported by Teachers (District n=750, SAHE Grantee n=240)

	Mean	SD	n	F	df	p
Program Component				25.92	1, 986	0.00
District	3.19	(0.89)	750			
SAHE Grantee	3.59	(0.80)	240			
Type				17.41	1, 986	0.00
Traditional	3.22	(0.85)	792			
Reform	3.54	(0.97)	198			
Program Component * Type				0.05	1, 986	0.81
District * Traditional	3.12	(0.86)	600			
District * Reform	3.45	(0.95)	150			
SAHE Grantee * Traditional	3.51	(0.75)	192			
SAHE Grantee * Reform	3.81	(0.96)	48			

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.

**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.

**Scale Definition:**  $EKS\_1 = (A4\_1a + A4\_1b + A4\_1c + A4\_1d + A4\_1e + A4\_1f) / 6$

**Scale Reliability:** .78

**Variables:** EKS\_1

### EXHIBIT E.3.17

#### Percent of Teachers Reporting Improvement in Classroom Teaching Practice Due to Participation in Eisenhower-assisted Professional Development Activities (District n=731 to 750, SAHE Grantee n=233 to 244)

Types of Teaching Practices	District	SAHE Grantee
Curriculum	45.86	54.31
Cognitive challenge	55.00	65.68
Instructional methods	57.84	66.94
Approaches to assessment	44.73	34.90
Use of technology	29.07	45.74
Approaches to diversity	30.48	33.76

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.  
**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program. Due to missing data on some items, the district n ranges from 731 to 750; the SAHE Grantee n ranges from 233 to 240.  
**Variables:** A4\_4a A4\_4b A4\_4c A4\_4d A4\_4e A4\_4f

### EXHIBIT E.3.18

#### Degree of Improvement in Classroom Teaching Practice Due to Participation in Eisenhower-assisted Professional Development Activities, as Reported by Teachers (District n=767, SAHE Grantee n=244)

	Mean	SD	n	F	df	p
<b>Program Component</b>				5.87	1, 1007	0.02
District	1.27	(0.80)	767			
SAHE Grantee	1.44	(0.77)	244			
<b>Type</b>				11.67	1, 1007	0.00
Traditional	1.25	(0.77)	804			
Reform	1.49	(0.88)	207			
<b>Program Component * Type</b>				0.00	1, 1007	0.95
District * Traditional	1.21	(0.78)	609			
District * Reform	1.45	(0.86)	158			
SAHE Grantee * Traditional	1.38	(0.72)	195			
SAHE Grantee * Reform	1.60	(0.92)	49			

**Source:** Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998.  
**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.  
**Scale Definition:** ICPT=(A4\_4a + A4\_4b + A4\_4c + A4\_4d + A4\_4e + A4\_4f)  
**Scale Reliability:** .87  
**Variables:** ICTP

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### EXHIBIT E.3.19

#### Percent of Teacher Participations in District Eisenhower-assisted Activities Compared to All Teachers in the Nation, Overall and by District Poverty (n=1197)

District Poverty	Percent of all teachers from high-poverty schools	Percent of Title II participations from high-poverty schools
Overall	21	23
Low	4	2
Medium	14	17
High	45	51

**Source:** Results for all teachers are based on data on the full population of schools from the CCD. Data on Title II participations are based on the Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998, including both respondents and non-respondents.

**Variables:**

### EXHIBIT E.3.20

#### Percent of Teacher Participations in District and SAHE Grantee Eisenhower-assisted Activities from High-poverty Schools (District n=1197, SAHE Grantee n=254)

	Percent of Teachers from High Poverty Schools
All Teachers	21
District Participations	23
SAHE-grantee Participations	13

**Source:** Results for all teachers are based on data on the full population of schools from the CCD. Data on Title II participations are based on the Mail Survey of Teachers Participating in Eisenhower-assisted Professional Development Activities, 1998, including both respondents and non-respondents.

**Note:** "Districts" refers to teachers who participated in Eisenhower-assisted activities provided through the district component of the program. "SAHE Grantees" refers to teachers who participated in Eisenhower-assisted activities supported through the SAHE component of the program.

**Variables:**

## EXHIBIT E.3.21a

### The Relationships of Features of Professional Development to Teacher Outcomes

Predictors	Dependent Variables <sup>a</sup>							
	Span	Amount	Collective Participation	Content Focus	Active Learning	Coherence	Knowledge and Skills	Improved Practice
Sponsor (1=District, 2=SAHE grantee)	.27***	.27***	-.13***	.15***	.08**	.01	.02	-.01
	1.25	26.27	-.36	.40	.15	.02	.04	-.02
	(.15)	(3.27)	(.10)	(.09)	(.05)	(.06)	(.06)	(.06)
Type (1=Traditional, 2=Reform)	.21***	.10**	.04	.01	.02	.02	.05*	.04
	.88	9.29	.11	.02	.03	.03	.11	.08
	(.14)	(2.98)	(.09)	(.08)	(.05)	(.06)	(.05)	(.05)
Time Span (1=<a day ... 9=over a year)				.08*	.30***	.26***	.02	.02
				.05	.12	.11	.01	.01
				(.02)	(.01)	(.01)	(.01)	(.01)
Contact Hours				.10**	.31***	.16***	.03	.09**
				.00	.01	.00	.00	.00
				(.00)	(.00)	(.00)	(.00)	(.00)
Collective Participation				.06	.13***	.08**	.03	.02
				.05	.08	.06	.02	.00
				(.02)	(.02)	(.02)	(.02)	(.00)
Content Focus							.33***	-.11***
							.29	-.08
							(.02)	(.02)
Active Learning							.14***	.03
							.18	.04
							(.04)	(.04)
Coherence							.42***	0.21***
							.51	0.22
							(.03)	0.04
Enhanced Knowledge & Skills (EKS)								.44***
								.39
								(.03)
R <sup>2</sup> (in percentage)	12.3	10.5	6.1	11.3	34.9	19.6	51.7	41.6

**Note:** <sup>a</sup> For each dependent variable, standardized regression coefficient ( $\beta$ ) is shown on the first line; unstandardized regression coefficient (b) on the second line; standard error (in parentheses) on the third line.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

# EXHIBIT E.3.21a (Continued)

## The Relationships of Features of Professional Development to Teacher Outcomes

Predictors	Dependent Variables <sup>a</sup>									
	Sponsor	Type	Span	Contact Hours	Collective Participation	Content Focus	Active Learning	Coherence	Knowledge and Skills	Improved Practice
School, percent of students in poverty	-.08*	.06	-.02	-.07	.04	.03	-.02	.03	.02	.02
	.00	.00	.00	-.11	.00	.00	.00	.00	.00	.00
	(.00)	(.00)	(.00)	(.06)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)
School, percent of minority students	.00	.03	.06	.16***	.04	.07	.04	.02	.02	-.04
	.00	.00	.00	.20	.00	.00	.00	.00	.00	.00
	(.00)	(.00)	(.00)	(.05)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)
Teacher's Gender (1=Female, 2=Male)	.02	.04	.02	.02	-.02	.05	-.01	-.07*	-.03	-.01
	.02	-.04	.07	2.54	-.05	.13	-.02	-.14	-.07	-.03
	(.04)	(.04)	(.16)	(3.52)	(.10)	(.09)	(.06)	(.07)	(.06)	(.06)
Subject (1=Math, 2=Science)	-.06	-.02	.00	.07*	.03	.11***	.05	-.03	.02	.04
	-.04	-.02	.00	5.50	.07	.22	.07	-.05	.04	.06
	(.03)	(.03)	(.12)	(2.50)	(.07)	(.07)	(.04)	(.05)	(.04)	(.04)
Grade Level (1=Elem, 2=Mid, 3=High)	.13***	-.01	-.13***	-.07	-.13	-.18***	-.12***	-.15***	.04	-.12
	.06	.00	-.28	-3.17	-.17	-.23	-.10	-.13	.04	-.11
	(.02)	(.02)	(.08)	(1.64)	(.05)	(.04)	(.03)	(.03)	(.03)	(.03)
In-field Certification (0=No, 1=Yes)	-.14***	-.03	.04	.00	.01	.04	.04	.10**	.01	-.07**
	-.11	-.03	.17	-.28	.03	.09	.06	.16	.03	-.12
	(.03)	(.03)	(.12)	(2.69)	(.08)	(.07)	(.04)	(.05)	(.05)	(.05)
Teaching Experience (in years)	-.03	-.01	.03	-.03	.10**	.00	-.08	.02	-.03	.05*
	.00	.00	.01	-.13	.01	.00	.00	.00	.00	.00
	(.00)	(.00)	(.01)	(.14)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)

Note: <sup>a</sup> For each dependent variable, standardized regression coefficient (β) is shown on the first line; unstandardized regression coefficient (b) on the second line; standard error (in parentheses) on the third line.

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

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## EXHIBIT E.3.21b

### VARIABLE DEFINITIONS

Variables	Symbol	Coding
School, percent of students in poverty	SCI-FLPC (source: CCD)	Percent (0 to 100)
School, percent of minority students	SC_MINPC (source: CCD)	Percent (0 to 100)
Teacher's Gender	A5_1	1=Female, 2=Male
Subject	SUBJECT (source: survey database)	1=Math, 2=Science
Grade Level	LEVTYPE (source: survey database)	1=Elementary, 2=Middle, 3=High
In-field Certification	INFIELD	0=No, 1=Yes Defined as follows: If (LEVTYPE=1 and (CERT_ELE=1 or CERTIF_M=1 or CERTIF_S=1)) or (LEVTYPE=2 and (CERT_MID=1 or CERTIF_M=1 or CERTIF_S=1)) or (LEVTYPE=3 and (CERT_SEC=1 or CERTIF_M=1 or CERTIF_S=1)) then INFIELD=1; Else INFIELD=0; where the following are based on item A5-5: CERT_ELE is certification in elementary education CERTIF_M is certification in math or math education CERTIF_S is certification in science or science education
Teaching Experience in mathematics or science	TCHEXP	Years Defined as follows: If SUBJECT=1 and A5_3b ne . then TCHEXP=A5_3b; Else if SUBJECT=2 and A5_3c ne . then TCHEXP=A5_3c; Else TCHEXP=A5_3a;
Sponsor	STYPE (source: survey database)	1=District, 2=SAHE grantee
Type	ATYPE	Activity Type(1=Traditional, 2=Reform) Defined as follows: If a3_2a=1 or a3_2b=1=b or a3_2c=1 or a3_2e=1 then ATYPE=1 Else ATYPE=2

## EXHIBIT E.3.21b (Continued)

### Variable Definitions

Variables	Symbol	Coding
Time Span	Time Span	1=<a day, 2=a day, 3=2-4 days, 4=a week, 5=a month, 6=2-5 months, 7=6-9 months, 8=10-12 months, 9=over a year Derived from combination of A3_7cat and A3_8
Contact Hours	A3_10_12	Hours Defined as A3_10 + A3_12
Collective Participation	SCH_BASE	0 to 2 Defined as A3_24c + A3_24d Scale Reliability = .35
Content Focus	D2_CO=1	If A3_15f=2 then D2_CO=1; else D2_CO=0
Active Learning	ALEARN_T	$ALEARN\_T = (A3\_6a + A3\_6c + A3\_6f + A3\_6h + A3\_6i) + 5/4 * (A3\_6b + A3\_6d + A3\_6e + A3\_35D) + (A3\_27e + A3\_27f + A3\_27g + A3\_27h + A3\_27j) + 5/4 * (A3\_27m + A3\_27n + A3\_6g + A3\_35e)$ Scale Reliability = .84
Coherence	COHERE_T	$COHERE\_T = 1.5 * (A3\_34e + A3\_34f) + (A3\_34a + A3\_34c + A3\_34d) + (A3\_31 + A3\_32, + A3\_33)$ Scale Reliability = .71
Enhanced Knowledge & Skills	EKS_I	$EKS\_I = (A4\_1a + A4\_1b + A4\_1c + A4\_1d + A4\_1e + A4\_1f) / 6$ Scale Reliability = .78
Change in Teaching Practice	ICTP	$ICPT = (A4\_4a + A4\_4b + A4\_4c + A4\_4d + A4\_4e + A4\_4f) / 6$ Scale Reliability = .87

**EXHIBIT E.3.21c**  
**Correlations among Teacher Activity Variables**

	Poverty	Minority	Gender	Subject	Grade	In-Field	Teaching Experience	Sponsor	Type	Span
School, percent of students in poverty	1.00									
School, percent of minority students	.50***	1.00								
Teacher's Gender	.00	-.03	1.00							
Subject	.02	.06	.13***	1.00						
Grade Level	-.15***	.01	.33***	.02	1.00					
In-field Certification	-.10*	-.08*	-.07*	-.02	-.02	1.00				
Teaching Experience	-.03	-.08*	.05	-.04	-.02	.02	1.00			
Sponsor	-.08	-.03	.03	-.07	.12***	-.11***	-.12***	1.00		
Type	.06	.07*	-.03	-.04	-.05	-.03	-.04	.03	1.00	
Time Span	.01	.04	-.01	-.02	-.06	-.04	-.04	.30***	.19**	1.00
Contact Hours	.01	.12***	.02	.05	-.01	-.06*	-.08*	.29***	.10**	.41***
Collective Participation	.08*	.05	-.09**	.02	-.14***	.03	.10**	-.15***	.02	-.01
Content Focus	.08*	.09**	-.03	.12	-.19***	.01	-.04	.17***	.05	.18***
Active Learning	.03	.08*	-.09**	.02	-.15***	.03	-.10**	.26***	.09**	.45***
Coherence	.03	.05	-.20***	-.09	-.21***	.11***	-.02	.11***	.10**	.32***
Enhanced Knowledge & Skills	.08*	.11*	-.08*	.04	-.15***	.05	-.08**	.19***	.16***	.34***
Change in Teaching Practice	.05	.03	-.15	.00	-.25***	.01	.01	.10**	.13***	.26***

\*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

**Note:** Pairwise correlations are based on n's ranging from 901 to 1027.



**EXHIBIT E.3.21c (Continued)**  
**Correlations among Teacher Activity Variables**

	Contact Hours	Collective Participation	Content Focus	Active Learning	Coherence	Knowledge and Skills	Improved Practice
School, percent of students in poverty							
School, percent of minority students							
Teacher's Gender							
Subject							
Grade Level							
In-field Certification							
Teaching Experience							
Sponsor							
Type							
Time Span							
Contact Hours	1.00						
Collective Participation	.01	1.00					
Content Focus	.18***	.06	1.00				
Active Learning	.46***	.14***	.26***	1.00			
Coherence	.23***	.12***	.29***	.49***	1.00		
Enhanced Knowledge & Skills	.30***	.11***	.51***	.48***	.62***	1.00	
Change in Teaching Practice	.26***	.13***	.25***	.40***	.54***	.58***	1.00

**Note:** \*  $p < .05$ ; \*\*  $p < .01$ ; \*\*\*  $p < .001$

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## EXHIBIT E.3.21d

### Items from Teacher Activity Survey Used in Analyses Reported in Chapter 3

#### SECTION III: DESCRIPTION OF ONE PROFESSIONAL DEVELOPMENT ACTIVITY

The following questions ask you to describe the professional development activity identified on the label on the cover of the survey, which you participated in over the past year.

In answering questions about the identified activity, *please include all components of the activity*, even if they occurred at different times during the year. (For example, if the activity was a summer institute with follow-up during the school year, include both the summer institute and the follow-up in your answers.)

2. Which of the following best describes the activity? **Choose only one response.** If more than one response fits the activity, pick the response that best describes the aspect of the activity in which you spent the most time.

Participation in an in-district workshop or institute .....	a
Attendance at a college course.....	b
Attendance at an out-of-district workshop or institute .....	c
Participation in a teacher collaborative or network.....	d
Attendance at an out-of-district conference .....	e
Working in an internship or immersion activity .....	f
Working with a mentor, coach, lead teacher, or observer .....	g
Use of a teacher resource center.....	h
Participation in a teacher committee or task force.....	i
Participation in a teacher study group.....	j
Other (please specify) .....	k

5. As part of the professional development activity, including any preliminary and follow-up sessions, did you have the opportunity to try out what you learned in your classroom and obtain feedback or guidance?

Yes..... 1  
No..... 2 (skip to question 7)

## EXHIBIT E.3.21d (Continued)

### Items from Teacher Activity Survey Used in Analyses Reported in Chapter 3

6. How did this professional development activity help you use new skills in your classroom? (Circle all that apply.)

- |   |   |
|---|---|
| Practiced under simulated conditions, with feedback.....  | a |
| Received coaching or mentoring in the classroom.....  | b |
| Met formally with other activity participants to discuss classroom<br>implementation .....            | c |
| My teaching was observed by the activity leader(s) and feedback<br>was provided .....                 | d |
| My teaching was observed by other participants and feedback was<br>provided.....                      | e |
| Communicated with the leader(s) of the activity concerning classroom<br>implementation .....          | f |
| My students' work was reviewed by participants or the<br>activity leader.....                         | g |
| Met informally with other participants to discuss classroom<br>implementation .....                   | h |
| Developed curricula or lesson plans, which other participants<br>or the activity leader reviewed..... | i |
| Other (specify) .....   | j |

7. Over what period of time was the activity spread, including the main activity and any formal preliminary or follow-up sessions? (Circle one response.)

- |                         |   |
|-------------------------|---|
| Less than one day ..... | a |
| One day .....           | b |
| Two-four days .....     | c |
| A week .....            | d |
| A month .....           | e |
| More than a month ..... | f |

8. In what month or months did the activity (including any preliminary or formal follow-up sessions) take place? Check the appropriate month(s) on the timeline below.

Before June 1997	June 1997	July 1997	Aug 1997	Sept 1997	Oct 1997	Nov 1997	Dec 1997	Jan 1998	Feb 1998	Mar 1998	April 1998	May 1998	June 1998
------------------------	--------------	--------------	-------------	--------------	-------------	-------------	-------------	-------------	-------------	-------------	---------------	-------------	--------------

10. Between June 1997 and the present, including the main activity and any preliminary activities or formal follow-up sessions, how many hours were you engaged in this activity overall?

\_\_\_\_\_ hours

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## EXHIBIT E.3.21d (Continued)

### Items from Teacher Activity Survey Used in Analyses Reported in Chapter 3

11. Is the activity still continuing?

- Yes..... 1  
No..... 2 (skip to question 15)

12. How many hours do you expect to be engaged in this activity between now and the end of the school year?

\_\_\_\_\_hours

15. How much emphasis did the activity give to each of the following areas?

	No Emphasis	Minor Emphasis	Major Emphasis
a. Curriculum (e.g., units, texts, standards) .....	0	1	2
b. Instructional methods .....	0	1	2
c. Approaches to assessment.....	0	1	2
d. Use of technology in instruction (e.g., computers, graphing calculators) .....	0	1	2
e. Strategies for teaching diverse student populations (e.g., students with disabilities, from underrepresented populations, economically disadvantaged, range of abilities) .....	0	1	2
f. Deepening your knowledge of mathematics.....	0	1	2
g. Leadership development.....	0	1	2
h. Other: (please specify).....	0	1	2

24. Which of the following characterize the participants in this activity? (Circle all that apply.)

- Teachers as individuals..... a  
Teachers as representatives of their departments, grade level, or school..... b  
All teachers in department or grade-level groupings..... c  
All teachers in a school or set of schools..... d  
Other configurations (specify) ..... e

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## EXHIBIT E.3.21d (Continued)

### Items from Teacher Activity Survey Used in Analyses Reported in Chapter 3

27. Which of the following did you engage in during the activity? (Circle all that apply.)

Listened to a lecture.....	a
Observed a demonstration of a lesson or unit.....	b
Participated in a whole-group discussion.....	c
Participated in a small-group discussion.....	d
Gave a lecture or presentation.....	e
Conducted a demonstration of a lesson, unit, or skill .....	f
Led a whole-group discussion.....	g
Led a small-group discussion.....	h
Engaged in extended problem solving.....	i
Wrote a paper, report or plan .....	j
Practiced using student materials .....	k
Developed or reviewed materials.....	l
Reviewed student work.....	m
Scored assessments.....	n
Collaborated as a colleague with mathematicians.....	o
Used technology (computers, calculators, or the internet) .....	p
Completed paper-and-pencil problems or exercises .....	q
Assessed participants' knowledge or skills.....	r
Other: (please specify).....	s

31. Have you discussed what you learned with other teachers in your school or department *who did not attend* the activity?

Yes..... 1  
No..... 2

32. Have you discussed or shared what you learned with *administrators* (e.g., principal or department chair)?

Yes..... 1  
No..... 2

33. Outside of formal meetings held as part of the activity, have you communicated with participants in the activity who teach in other schools?

Yes..... 1  
No..... 2

## EXHIBIT E.3.21d (Continued)

### Items from Teacher Activity Survey Used in Analyses Reported in Chapter 3

34. To what extent was the professional development activity :

	<u>Not at all</u>					<u>Great Extent</u>	<u>Not Applicable</u>
a. Consistent with your own goals for your professional development.....	1	2	3	4	5		na
b. Consistent with your school's or department's plan to change practice .....	1	2	3	4	5		na
c. Based explicitly on what you had learned in earlier professional development experiences.....	1	2	3	4	5		na
d. Followed up with activities that built upon what you learned in this professional development activity .....	1	2	3	4	5		na
e. Designed to support state or district standards/curriculum frameworks.....	1	2	3	4	5		na
f. Designed to support state or district assessment.....	1	2	3	4	5		na

35. How was the activity evaluated (if evaluated)? (Circle all that apply.)

Participants completed a survey .....	a
Participants were interviewed to provide feedback.....	b
The session was observed by an evaluator.....	c
My classroom was observed.....	d
Student outcomes in my classroom were evaluated .....	e
Some other form of evaluation took place (specify).....	f
No discernible evaluation took place.....	g

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## EXHIBIT E.3.21d (Continued)

### Items from Teacher Activity Survey Used in Analyses Reported in Chapter 3

#### SECTION IV: EFFECTIVENESS OF THE MATHEMATICS RELATED PROFESSIONAL DEVELOPMENT ACTIVITY

The following questions ask about the effectiveness of the same professional development activity you described in Section III.

1. To what extent do you feel that your knowledge and skills have been enhanced in each of the following areas as a result of your participation in the identified professional development activity? (Circle one response on each line.)

	Not at All				Great Extent
a. Curriculum (e.g., units, texts, standards) .....	1	2	3	4	5
b. Instructional methods .....	1	2	3	4	5
c. Approaches to assessment .....	1	2	3	4	5
d. Use of technology in instruction (e.g., computers, graphing calculators) .....	1	2	3	4	5
e. Strategies for teaching diverse student populations (e.g., students with disabilities, from underrepresented populations, economically disadvantaged, range of abilities) .....	1	2	3	4	5
f. Deepening knowledge of mathematics .....	1	2	3	4	5
g. Leadership development .....	1	2	3	4	5
h. Adapting teaching to meet state assessment requirements .....	1	2	3	4	5
i. Adapting teaching to meet state standards or curriculum framework requirements .....	1	2	3	4	5
j. Learning about state assessments in professional development .....	1	2	3	4	5
k. Learning about state standards or curriculum frameworks in professional development .....	1	2	3	4	5
l. Other: (please specify) .....	1	2	3	4	5

2. Have you attempted to introduce changes in your teaching because of your participation in the identified activity?

Yes..... 1  
No..... 2 (skip to section V)

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## EXHIBIT E.3.21d (Continued)

### Items from Teacher Activity Survey Used in Analyses Reported in Chapter 3

4. To what extent have you made each of the following changes in your teaching practices as a result of the professional development activity (Circle one number for each line):

	<u>No Change</u>	<u>Minor Change</u>	<u>Moderate Change</u>	<u>Significant Change</u>
a. The mathematics curriculum content.....	0	1	2	3
b. The cognitive challenge of math classroom activities .....	0	1	2	3
c. The instructional methods I employ .....	0	1	2	3
d. The types or mix of assessments I use to evaluate students .....	0	1	2	3
e. The ways I use technology in instruction (calculator or computer) .....	0	1	2	3
f. The approaches I take to student diversity .....	0	1	2	3

### SECTION V: TEACHER BACKGROUND AND WORKLOAD

1. Please indicate your sex. (Circle one response.)

Female.....	1
Male.....	2

2. Please indicate your ethnicity/race. (Circle one response.)

American Indian or Alaskan Native .....	1
Asian or Pacific Islander.....	2
African American, not of Hispanic origin.....	3
White, not of Hispanic origin.....	4
Hispanic.....	5
Other: (please specify) _____ .....	6

3. How many years of teaching experience do you have?

a. Overall	_____ years
b. Teaching math	_____ years
c. Teaching science	_____ years



## EXHIBIT E.3.21d (Continued)

### Items from Teacher Activity Survey Used in Analyses Reported in Chapter 3

4. Please mark the box[es] next to the degree(s) you hold. Use the list of code numbers from the next page to indicate your major and minor fields of study for each degree. (If you do not have a second major or minor field, please enter "00".)

Post-secondary degrees	(Circle one on each line)		Enter field code from list on next page (Question 5)		Enter year of degree
	Yes	No	Major Field	Second Major/Minor	
a. Bachelor's Degree	1	2			
b. 2nd Bachelor's Degree	1	2			
c. Master's Degree	1	2			
d. 2nd Master's Degree	1	2			
e. Doctorate (e.g., Ph.D., Ed.D.)	1	2			
f. Professional Degree (e.g., M.D., L.L.B., J.D., D.D.S.)	1	2			

5. Certification: Circle the field codes of the subjects listed below for which you have state certification.

List of Teaching Field and College Major Codes:

Education

Elementary education	01
Middle school education	02
Secondary education	03
Mathematics education	04
Science education	05
Special education	06
Bilingual education	07
Other general education	08

Math/Computer Science

Mathematics	21
Computer science	22

Science

Biology/life science	11
Geology/earth sciences	12
Chemistry	13
Physics	14
Engineering	15
Other natural sciences	16

Other

English/language arts	31
Social sciences/social studies	32
Vocational education/agriculture	33
Arts/music	34
Foreign languages	35
Philosophy	36
Psychology	37
Health/PE	38
Other: (please specify)_____	40
Administration	50